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set, or column, water (or colored standard solution) is used in the outer cup, and the colored test fluid plus the indicator in the inner cup. After adjustment, this set is not removed from the colorimeter during an observation. In the case of the righthand set the outer cup contains the colored test fluid, while the inner cup is for the standard solution plus indicator. This set is placed on the right for convenience, as it may be necessary to compare with the test fluid a series of standards until an exact match is obtained. A rough comparison, of course, is made before selecting the standard solution for comparison. In each case the column must contain an equal depth of colored test solution and of standard or colorless liquid, the indicator being in the standard in the one case and in the test solution in the other. There are no optical difficulties, and unless the indicator combines with the test solution, the comparison may be perfect."

The authors believe this method is as rapid as and more accurate than other methods.—J. WOODARD.

Storied structure of dicotyledonous woods.—A recent paper by Record[3] continues his studies upon the storied or tierlike structure of woods. He finds this arrangement of the secondary elements characteristic of many dicotyledonous woods, occurring through a wide range of orders and families. Such woods on longitudinal section (particularly the tangential) present fine cross lines or striations ("ripple marks"), which may be due to (1) the horizontal seriation of the medullary rays, (2) the tierlike arrangement of the tracheids, wood fibers, vessel segments, and the secondary phloem elements, or (3) a combination of (1) and (2). In some woods the pit areas on the fibers are also in seriation. This storied structure has been found fairly characteristic of the families Leguminosae (40 genera), Bignoniaceae (3), Bombacaceae (3), Compositae (3), Malvaceae (4), Sterculiaceae (7), Tiliaceae (5), and Zygophyllaceae (3); and occurs in one or two genera of each of the following families: Amarantaceae, Ebenaceae, Hippocastanaceae, Moraceae, Sapindaceae, and Ulmaceae.

Particular attention has been given in the present investigation to the various elements storied, the uniformity and distinctness of these transverse lines (ripple marks), and the height of the tiers in each wood examined. "Ripple marks" are sufficiently constant in stems of considerable thickness to serve, the author believes, as a "valuable diagnostic feature."—LADEMA M. LANGDON.

Antarctic and sub-antarctic vegetation.—TURRILL[4] has embodied in a convenient and useful summary the botanical results of the Swedish expeditions to the antarctic regions. These have appeared from time to time in the report of SKOTTSBERG and others, and many have been noted in this journal.[5] The more recent reports have contributed to our knowledge of the vegetation of the portion of South America and adjacent islands between 48° and 56° S. Here is a rain forest covering a limited area, and composed of trees of low stature, few exceeding 10 m. in height. The conspicuous species include *Nothofagus betuloides*, *Drimys Winteri*, *Pseudopanax laetevirens*, and *Libocedrus tetragona*, the only conifer reaching Fuegia. In unforested areas dwarf shrubs, many from the heath family, and cushion plants are conspicuous.

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[3] RECORD, S. J., Storied or tierlike structures of certain dicotyledonous woods. Bull. Torr. Bot. Club **46**:253–273. 1919.

[4] TURRILL, W. B., Botanical results of Swedish South American and antarctic expeditions. Roy. Bot. Gard. Kew Bull. 268–279. 1919.

Farther to the north the Valdivian rain forest occupies the region between the coast and the Andes, forming in the lower passes of the mountains a transition to the deciduous forest of the east slope. Between 41° and 44° S. a forest of *Libocedrus chilensis* is interposed between the rain forest and the deciduous. Many other formations are characterized, such as the pampas area east of the Andes, the alpine heaths and meadows, the tussock grass and the tundras. The bibliography includes 23 articles.—GEO. D. FULLER.

Influence of environment on form and structure.—FOLSAM[6] reports a study of the effects of 5 different degrees of soil water supply upon the structural features of *Ranunculus sceleratus* and *R. abortivus*. Plants were grown as pot cultures in a greenhouse. Water was supplied in amounts varying from complete submergence of soil and plant, to only enough soil moisture to support life. In the 24 which were studied 6 structural characteristics of *R. sceleratus* gave consistently larger values with progressively greater water supply in the first generation of plants. In the second generation, 2 of the 6 characters continued to show the same relation. They were (1) thickness of stem cortex, and (2) thickness of stem aerenchyma, both absolute and relative to cortex thickness. In the first generation 5 structural features of *R. abortivus* were found to be related in the same way to water supply. Of these the one relation of increased laminar area of root leaves with increased water supply was shown, although less consistently in the case of *R. sceleratus*. A third generation of the latter species was grown to determine whether the conditions of water supply of parent affected the laminar area of root leaves of progeny grown both as xerophytes and as amphibians. Seeds for this generation were obtained from the xerophyte group of the first generation, and from the amphibious group of the second generation. Progeny grown with a large water supply gave consistently increased laminar area of root leaves over plants grown with a small water supply, regardless of water relations of parents.—J. M. ARTHUR.

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[5] BOT. GAZ. **58**:96–98, 190. 1914; **63**:423. 1917.

[6] FOLSAM, DONALD, The influence of certain environmental conditions, especially water supply, upon form and structure in *Ranunculus*. Physiol. Res. **2**:209–276. 1918.